Message

From: Spreng - CDPHE, Carl [carl.spreng@state.co.us]
Sent: 5/26/2017 10:21:56 PM
To: Gallo, Patty (CONTR) [Patty.Gallo@lm.doe.gov]
CC: Moritz, Vera [Moritz.Vera@epa.gov]; lindsay.masters@state.co.us; Surovchak, Scott [Scott.Surovchak@lm.doe.gov]; McDonald, Michael (CONTR) [Michael.McDonald@lm.doe.gov]; Valenti, John (CONTR) [John.Valenti@lm.doe.gov]; Newsom, Scott (CONTR) [Scott.Newsom@lm.doe.gov]; Cummins, Laura (CONTR) [Laura.Cummins@lm.doe.gov]; Kaiser, Linda (CONTR) [Linda.Kaiser@lm.doe.gov]; Ward, David (CONTR) [David.Ward@lm.doe.gov]
Subject: Re: Summary of conference call discussion - FYR
Attachments: TOPIC - RURAL RESIDENT References.docx

Patty,

1. I checked our Radiation Control Regulations and cannot find any reference to a residential scenario. The 25 mrem dose limit applies to a "average member of the critical group". There is a definition of that term in federal guidance, but I don't believe the definition includes any specific parameters.
2. The past few years I've been compiling information on various topics (so I don't have to go looking for the info every time I need it). I've attached the file I made for rural resident references.
3. I contacted Stuart Walker yesterday. He oversees EPA's PRG calculator development and updates. We went through a run together and he looked over the PRG tables from App. C that I sent him. He said that the results look reasonable. I asked him about the differences between the results for WRW vs. resident. He said that differences may be due to:

- the different scenarios emphasize pathways differently so that the new slope factors will affect the results differently;
- checking the "secular equilibrium" box now includes all daughter products in the entire chain; before, including daughter products meant just including the next 2 or 3 daughters;
- increased emphasis on eating home-grown produce with lots of different items to choose from; can reduce this pathway by not checking uncommon fruits and vegetables (how much pumpkin and beets do you really eat?) and by checking "uncooked", which reduces the intake by about half for most items.

4. Here's some summary info from the Task 3 Report (9/30/2002):

- Risk-based RSAL calculations for plutonium are dominated by soil ingestion (50%) and inhalation (32%)

- For the probabilistic dose-based calculations of RSALs for americium, plutonium, and uranium, percent contributions of exposure pathways are based on the 5th percentiles of the RSAL distribution. For americium and plutonium, the following is the rank order of percent contribution to RSALs soil ingestion > plant ingestion > inhalation > external exposure.

- Risks were calculated using both probability distributions (typically for the more sensitive parameters) and point estimates (single number to represent the distribution).

Exposure variable	Probability function	Point estimate value
Exposure duration (resident)	Truncated log normal (1-87 years)	30 years
Exposure frequency (resident)	Triangular (175, 234, 350) days/yr	234 days
Exposure duration (WRW)	Truncated Normal (7.18,7,0,40) years	
Exposure Frequency (WRW)		

- Exposure Frequency - Resident

The Superfund default CTE for residential exposure frequency is 234 days/yr, which corresponds to the fraction of time spent at home (64%) for both men and women based on a study of time use patterns summarized in 1990 In other words, the available data suggest that, on average, individuals spend approximately two-thuds of the year at home.

For this analysis, a probability distribution was generated from the CTE given by the ***Exposure***

Factors Handbook (U ***S*** EPA, 1997) (234 days/yr = mode of distribution) and professional judgment regarding a plausible range among a residential population. The maximum value of 350 days was selected to reflect an average **of** approximately two weeks per year spent away from home, either on family vacation or business travel. A minimum of 175 days/yr was selected to reflect a minimum of approximately 50% of the year spent at home.

I'll fill in some more info later.

Carl

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On Thu, May 25, 2017 at 4:55 PM, Gallo, Patty (CONTR) <Patty.Gallo@lm.doe.gov> wrote:

> All:
>
> Below is a summary of items discussed in our conference call today. The purpose of the call was to address questions from CDPHE on the RESRAD and PRG calculator input parameters (PDF files) emailed to the FYR

Team on May 24 and speak about CDPHE comments on the revised Appendix C, *Risk Assessment Review* of the FYR report. Conference call participants included DOE: Scott Surovchak; CDPHE: Carl Spreng and Lindsay Masters; DOE contractors: Mike McDonald, Scott Newsom, Patty Gallo, David Ward.

Questions on the radiological input parameters:

1. In the RESRAD 2017 PDF file, why did we run the Windblown EU for Uranium and not Pu/Am? Can we complete a 2017 run for surface soil Pu/Am in the Windblown EU? Mike McDonald (DOE contractor) completed the requested RESRAD run for surface soil Pu/Am in the WBEU and it has been distributed to the Team. The results of this Pu/Am RESRAD run will replace the results of the WRW surface soil U RESRAD run (last scenario listed) in Table C-12. Associated text in the appendix will be revised, if necessary.

2. Why did we use 234 days/year as the exposure frequency for the residential scenario in the PRG calculator (as opposed to 350 days/year)? This value came from the 2002 RSAL document and is described as the average residential exposure frequency. John Valenti (DOE contractor most familiar with the PRG calculator) was on vacation at the time of this call. **ACTION: P. Gallo to follow up with John on Tuesday, May 30.**

C. Spreng asked if it was worth attempting to locate the input parameters associated with the residential PRG value used to determine UU/UE in 2006. All agreed that this would be helpful. **ACTION: C. Spreng to contact Susan Griffith (EPA risk assessor) to discuss.**

D. Ward asked if the state of Colorado has defined the residential scenario (and associated input parameters) in their regulations/guidance in relation to the 25 mrem/year dose criterion. **ACTION: C. Spreng to look into this.**

Because this question was not resolved on the call, participants agreed that additional discussion via email or phone was warranted once more information had been gathered.

3. The very last page of the RESRAD 2006 PDF file (Summary of Pathway Selections) looks incomplete. Was the page cutoff? Yes, the page in the 2006 PDF file was cutoff deliberately. The complete list of pathways can be viewed in the 2017 PDF file. The purpose of truncating the file was to focus on the list of input parameters.

Comments on Appendix C:

1. Paragraph following Table C-5. Revise second sentence to read, "Because the reevaluation of surface soil data discussed above verifies that the CRA process correctly identified the COCs, the rescreening of all PRGs against subsurface data is not warranted.

2. Second sentence of first paragraph in Section C2.3.2. Can this sentence be reworded or can it be deleted without any concern? **ACTION: P. Gallo to discuss with L. Cummins, DOE contractor.**

3. Revise third sentence of first paragraph in Section C2.3.2 to include reference to Table C-5 at the end of the sentence.

4. Second to last sentence of last paragraph in Section C2.3.2. L. Masters indicated that a 2017 IRIS report on benzo(a)pyrene is available. Can we determine if this sentence requires revision based on this report?
ACTION: P. Gallo to discuss with L. Cummins, DOE contractor.

5. Section C2.3.3, second paragraph. Delete sentence beginning, "In fact, 18 revisions…" and delete sentence beginning, "The cancer slope factors used…".

6. Table C-9 PRG Comparison for WRW. Footnote "a" – Revise second sentence to read, "The WRW scenario exposure frequency is 230 days/year…".

7. Tables C-9, C-14, and C-15. Be consistent in the number of significant digits displayed. Add footnotes to document any changes/rounding made on values sourced to an existing document (i.e., DOE 1994, DOE 2002).

Please let me know if I misinterpreted any of the comments or discussion. Thanks.

Patty

Patricia Gallo

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